

#### REMARKS

Claims 3, 4, 8, 10, 12 and 14 stand rejected under 35 USC 112, second paragraph. The claims have been amended and it is believed that the claims, as now amended, are not open to rejection under 35 USC 112, second paragraph.

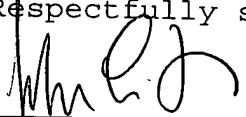
Claims 1, 14 and 15 stand rejected under 35 USC 103 over Gilliland '642 in view of Gilliland et al '627.

Gilliland '642 discloses that a workpiece may be scanned with cameras that move linearly over the workpiece to obtain complete information about the configuration of the workpiece. The configuration information is supplied to a welding program that controls the welders for precisely positioning the welders for welding operation to be performed. Gilliland '642 does not disclose that control of the welding should take place on the basis of the positions of the weld points as determined from the information obtained from the scanning operation. The examiner relies on Gilliland et al '627 as disclosing this feature and refers to the passage at column 29, line 45 to column 31, line 50. This passage in Gilliland et al '627 relates to providing a reference book containing descriptions of welding programs for a plurality of different workpieces. The idea is that the operator will be able to select a ready-made welding program for each situation rather than be required to generate a welding program from scratch. Applicant submits that Gilliland et al '627 does not supply the deficiency in the disclosure of Gilliland '642.

In order to distinguish the claims further from the prior art, applicant has amended claims 1, 14 and 15 to refer to an extended image. Applicant believes that this reference clarifies that the image is not obtained by linearly scanning the constituent pieces that are to be welded. Further, applicant has added a new claim 24 which recites that the extended image is recorded photographically. This feature also is not disclosed or suggested by the recited references,

it being noted that the camera that is included in the scanning head 16 of Gilliland '642 is a television camera.

Respectfully submitted,

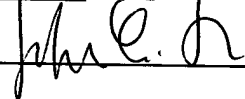
  
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Mikko VEIKKOLAINEN et al

Art Unit: 1725

Application No: 09/941,485

Examiner:  
Clifford C. Shaw

Filed: August 28, 2001

For: WELDING ARRANGEMENT AND METHOD

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claims 1, 3, 4, 8, 10, 12, 14 and 15, rewrite as follows:

1. (Amended) A method of forming a welded structure comprising:

arranging [on] constituent pieces of the structure to be welded on a support surface in a desired configuration,

recording at least one extended image of the arrangement of the constituent pieces on the support surface,

determining from the image(s) the positions of a plurality of weld points,

welding with welding apparatus the constituent pieces together at said weld points to form the welded structure, and

controlling the welding of the constituent pieces with said welding apparatus on the basis of the determined positions of the weld points.

3. (Amended) A method according to claim 1, comprising recording the at least one image in memory [of the camera means (3) and/or in memory of the welding apparatus (4) and/or in a combined memory for the camera means (3) and the welding apparatus (4)].

4. (Amended) A method according to claim 1, comprising recording the at least one image in memory of [an external] a device (17) external to the camera means.

8. (Amended) A method according to claim 1, comprising welding the structure automatically or [semi-automatically] or with the assistance of a user.

10. (Amended) A method according to claim 1, comprising determining the positions of the weld points [are determined] from the at least one image either automatically or with the assistance of a user.

12. (Amended) A method according to claim 1, comprising welding the constituent pieces together by arc welding[, e.g. gas arc welding].

14. (Amended) A method of forming a large welded structure, [for example a part or parts of a ship, a paper machine, a building, a train or a truck,] comprising:

arranging constituent pieces of the structure to be welded on a support surface in a desired configuration,

recording at least one extended image of the arrangement of the constituent pieces on the support surface,

determining from the image(s) the positions of a plurality of weld points,

welding with welding apparatus the constituent pieces together at said weld points to form the welded structure, and

controlling the welding of the constituent pieces with said welding apparatus on the basis of the determined positions of the weld points.

15. (Amended) A welding arrangement for forming a welded structure from a plurality of constituent pieces, comprising

a support surface for supporting the constituent pieces in the configuration of a structure to be welded,

camera means for providing an extended image of the structure to be welded,

evaluating means for determining the positions of weld points of the structure to be welded based on the image provided by the camera means,

welding apparatus for welding together the constituent pieces of the structure at the positions of the weld points determined by the evaluating means.